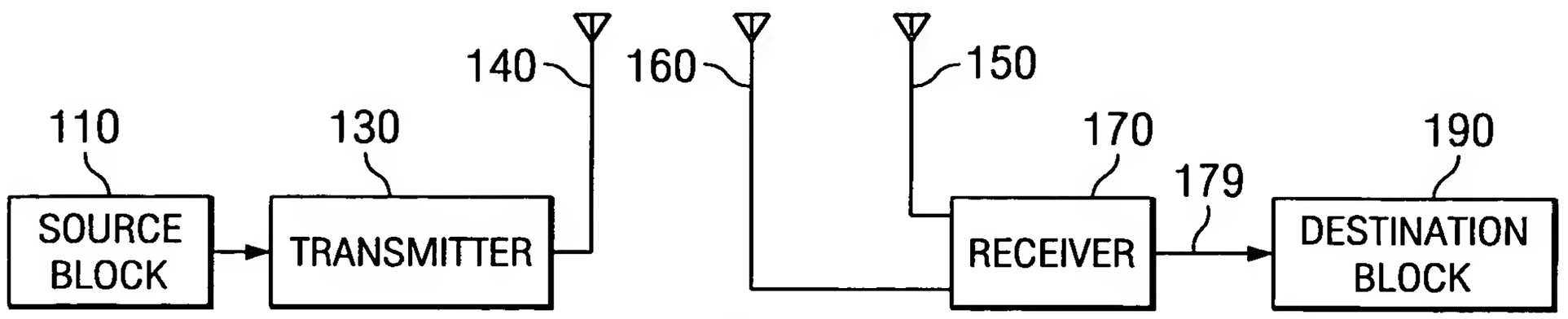

FIG. 1

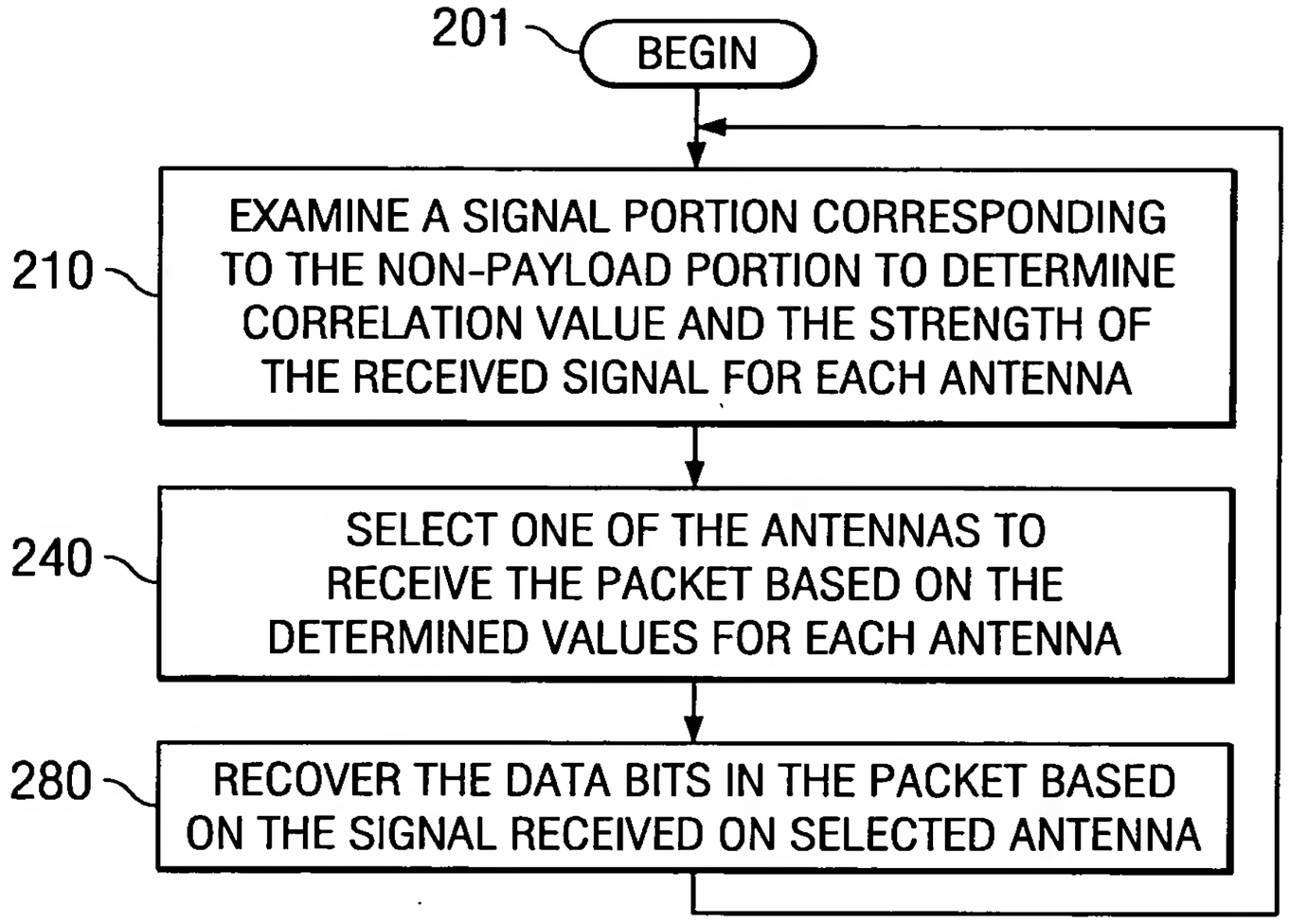

FIG. 2

FIG. 3

$$
\begin{cases}
(1)\ 1/K < \sigma_1^2 / \sigma_2^2 < K \\
(2)\ \mathbf{x}_k = s_k\, \mathbf{b} \\
(3)\ \mathbf{y}_{1,k} = \sqrt{G_1}\,(\alpha_1\, \mathbf{x}_k + \mathbf{n}_{1,k}) \\
(4)\ \mathbf{y}_{2,k} = \sqrt{G_2}\,(\alpha_2\, \mathbf{x}_k + \mathbf{n}_{2,k}) \\
(5)\ G_i = \dfrac{P}{|\alpha_i|^2 + \sigma_i^2} \\
(6)\ \quad = \dfrac{P}{\sigma_i^2(1+\rho_i)} \\
(7)\ |\mathbf{b}^H \mathbf{y}_{i,k}|^2 = G_i\,[\,|\alpha_{i,k}|^2 |s_k|^2 \mathbf{N}^2 + |\mathbf{b}^H \mathbf{n}_{i,k}|^2 + 2Re\,(\mathbf{b}^H \mathbf{n}_{i,k} \mathbf{N}\, \alpha_{i,k}^*\, 8_k^*)]
\end{cases}
$$

FIG. 4A

$$
\begin{cases}
(8)\quad |\mathbf{b}^H \mathbf{y}_{i,k}|^2 = \dfrac{\rho_i}{1+\rho_i}\,\mathbf{N}^2\,\mathbf{P} + 2\Re\left(\dfrac{\mathbf{b}^H \mathbf{n}_{i,k}}{\sigma_i}\,\dfrac{\alpha_{i,k}^* s_k^*}{\sigma_i}\,\dfrac{NP}{1+\rho_i}\right) \\
\qquad\qquad + \qquad\quad \left|\dfrac{\mathbf{b}^H \mathbf{n}_{i,k}}{\sigma_i}\right|^2 \dfrac{P}{1+\rho_i} \\
(9)\quad P([C_1, C_2, G_1, G_2]/\rho_1 > \rho_2) = \int_{\rho_2=0}^{\infty} \int_{\rho_1=\rho_2}^{\infty} f(C_1, C_2, G_1, G_2/\rho_1, \rho_2, \sigma_1^2, \sigma_2^2) \\
\qquad\qquad f(\rho_1, \rho_2)\, f(\sigma_1^2, \sigma_2^2)\, d\rho_1\, d\rho_2\, d\sigma_1^2\, d\sigma_2^2 \\
(10)\ P([C_1, C_2, G_1, G_2]/\rho_1 > \rho_2) = \int_{\rho_2=0}^{\infty} \int_{\rho_1=\rho_2}^{\infty} f(C_1/\rho_1)\, f(C_2/\rho_2) \\
\qquad f(G_1, G_2/\rho_1, \rho_2, \sigma_1^2, \sigma_2^2)\, f(\rho_1, \rho_2)\, f(\sigma_1^2, \sigma_2^2)\, d\rho_1\, d\rho_2\, d\sigma_1^2\, d\sigma_2^2 \\
(11)\ f(G_1, G_2/\rho_1, \rho_2, \sigma_1^2, \sigma_2^2) = \delta\left(G_1 - \dfrac{P}{\sigma_1^2(1+\rho_1)}, G_2 - \dfrac{P}{\sigma_2^2(1+\rho_2)}\right) \\
(12)\qquad\qquad = \delta\left(\sigma_1^2 - \dfrac{P}{G_1(1+\rho_1)}, \sigma_2^2 - \dfrac{P}{G_2(1+\rho_2)}\right)
\end{cases}
$$

FIG. 4B

FIG. 4C

$$(13)\quad a < \frac{P}{G_1(1+\rho_1)} < b$$

$$(14)\quad a < \frac{P}{G_2(1+\rho_2)} < b$$

$$(15)\quad \rho_1 > \rho_2$$

$$(16)\quad \rho_1, \rho_2 > 0$$

$$(17)\quad \int_{\rho_2=max(\frac{P}{bG_2}-1,0)}^{\frac{P}{max(G_1,G_2)a}-1} \int_{\rho_1=max(\frac{P}{bG_1}-1,\rho_2)}^{\frac{P}{aG_1}-1} f(C_1/\rho_1)\, f(C_2/\rho_2)\, \frac{1}{(b-a)^2}\, f(\rho_1,\rho_2)\, d\rho_1\, d\rho_2$$

$$\int_{\rho_2=max(\frac{P}{bG_2}-1,0)}^{\frac{P}{max(G_1,G_2)a}-1} \int_{\rho_1=max(\frac{P}{bG_1}-1,\rho_2)}^{\frac{P}{aG_1}-1} f(C_1/\rho_1)\, f(C_2/\rho_2)\, f(\rho_1,\rho_2)\, d\rho_1\, d\rho_2 >$$

$$(18)\quad \int_{\rho_1=max(\frac{P}{bG_1}-1,0)}^{\frac{P}{max(G_1,G_2)a}-1} \int_{\rho_2=max(\frac{P}{bG_2}-1,\rho_1)}^{\frac{P}{aG_2}-1} f(C_1/\rho_1)\, f(C_2/\rho_2)\, f(\rho_1,\rho_2)\, d\rho_1\, d\rho_2$$

$$\int_{\rho_2=max(\frac{1}{g_2K}-1,0)}^{\frac{1}{max(g_1,g_2)}-1} \int_{\rho_1=max(\frac{1}{Kg_1}-1,\rho_2)}^{\frac{1}{g_1}-1} f(C_1/\rho_1)\, f(C_2/\rho_2)\, f(\rho_1,\rho_2)\, d\rho_1\, d\rho_2 >$$

$$(19)\quad \int_{\rho_1=max(\frac{1}{Kg_1}-1,0)}^{\frac{1}{max(g_1,g_2)}-1} \int_{\rho_2=max(\frac{1}{Kg_2}-1,\rho_1)}^{\frac{1}{g_2}-1} f(C_1/\rho_1)\, f(C_2/\rho_2)\, f(\rho_1,\rho_2)\, d\rho_1\, d\rho_2$$

505 If (g2/g1) > T1, then select Antenna 160

510 else if (g2/g1) < (1/T1), then select Antenna 150

515 else if (g2/g1) > 0, then

520 If C1 $\notin$ [μ_∞ -c1(g2/g1)-m1(g2/g1)*g2dB, μ_∞ +c1(g2/g1)+m1(g2/g1)*g2dB] &
C2 $\in$ [μ_∞ -c2(g2/g1)-m2(g2/g1)*g2dB, μ_∞ +c2(g2/g1)+m2(g2/g1)*g2dB],
then select Antenna 160

525 else select Antenna 150

end if

530 else if g2/g1<0 then

535 If C2 $\notin$ [μ_∞ -c2(g2/g1)-m2(g2/g1)*g2dB, μ_∞ +c2(g2/g1)+m2(g2/g1)*g2dB] &
C1 $\in$ [μ_∞ -c1(g2/g1)-m1(g2/g1)*g2dB, μ_∞ +c1(g2/g1)+m1(g2/g1)*g2dB]
then select Antenna 150

540 else select Antenna 160, end if

550 else if g2<T2

555 If $(C1 - \mu_\infty)^2 - (C2 - \mu_\infty)^2 < 0$, then select Antenna 150

560 else select Antenna 160, end if

570 else if C1>C2 then, select Antenna 150

580 else select Antenna 160, end if

FIG. 5